DIRECT TESTIMONY OF

JAMES HERNDON

ON BEHALF OF

DOMINION ENERGY SOUTH CAROLINA, INC.

DOCKET NO. 2021-361-G

Q. PLEASE STATE YOUR NAME, POSITION OF EMPLOYMENT, AND BUSINESS ADDRESS.

A. My name is James Herndon, and I am a Vice President in the Strategy and Planning Practice within the Utility Services Business Unit of Resource Innovations, Inc. ("Resource Innovations"). My business address is 2000 Regency Parkway, Suite 455, Cary, North Carolina 27518. A statement of my background and qualifications is attached as Appendix A.

Q. HOW DO YOU AND RESOURCE INNOVATIONS ASSIST UTILITIES IN EVALUATING POSSIBLE DEMAND SIDE MANAGEMENT ("DSM") PROGRAMS?

A. I provide consulting services to clients of Resource Innovations in the field of DSM. In my role I help utilities develop DSM programs, and that process includes: Conducting market impact analyses; assisting utilities in identifying energy saving opportunities; developing cost-benefit analyses; and designing portfolios, programs, and/or other initiatives.

Q. PLEASE DESCRIBE RESOURCE INNOVATIONS' EXPERIENCE IN THE FIELD OF DSM.

A. Resource Innovations conducts development, implementation, and evaluation of DSM programs for public and investor-owned utilities, governments, and end-use customers. Resource Innovations' Utility Services Business Unit also helps a wide range of commercial, institutional, and industrial facility owners to manage energy consumption and reduce energy costs in their facilities. Our range of experience in the DSM field includes, but is not limited to, the following activities for a variety of clients across the country:

- Program design;
- program implementation;
- marketing, vendor outreach, education, and training;
- incentive processing and fulfillment;
- turnkey customer service;
- online program tracking and reporting; and
- evaluation, measurement, and verification.

An abbreviated, but representative, listing of our key clients is included in Appendix B of my testimony

Q. PLEASE INDICATE THE COMPANIES AND ROLES IN WHICH RESOURCE INNOVATIONS HAS SUPPORTED DSM INITIATIVES.

A. Resource Innovations has developed and administered DSM programs for clients across the country. An abbreviated, but representative, listing of our key clients is included in Appendix B of my testimony.

Q. HAVE YOU PROVIDED TESTIMONY IN OTHER REGULATORY PROCEEDINGS?

A. Yes. I have submitted testimony before the Public Service Commission of South Carolina in Docket Nos. 2019-224-E & 2019-225-E, as well as before the Virginia State Corporation Commission, the North Carolina Utilities Commission, the Florida Public Service Commission, the Public Utilities Commission of Ohio, and the New Jersey Board of Public Utilities.

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY IN THIS PROCEEDING?

A. The purpose of my direct testimony is to provide information regarding Dominion Energy South Carolina, Inc.'s ("DESC" or "Company") Request for Approval of New Natural Gas Energy Efficiency Programs filed for approval in Docket No. 2021-361-G ("Application").

Specifically, my testimony explains DESC's DSM program design process and provides an overview of the proposed programs, including Resource Innovations' analysis of the estimated participation rates, program costs, projected natural gas savings, and projected cost-effectiveness.

Q. ARE YOU SPONSORING ANY EXHIBITS IN CONNECTION WITH YOUR DIRECT TESTIMONY?

A. Yes. I am presenting two exhibits, which have been prepared under my direction and supervision and are accurate and complete to the best of my knowledge and belief. The exhibits attached hereto are described below.

- Exhibit No. ___ (JH-1) – Summary of Program and Portfolio Impacts, including estimated annual energy savings, annual budgets, and cost-effectiveness results
- Exhibit No. ____ (JH-2) – Program Plans

DEVELOPMENT OF THE PROPOSED NATURAL GAS ENERGY EFFICIENCY ("EE") PROGRAMS

Q. PLEASE EXPLAIN YOUR INVOLVEMENT IN THE DEVELOPMENT OF DESC'S PROPOSED PROGRAMS.

A. I led a team of Resource Innovations consultants that advised DESC in its assessment of opportunities to provide EE offerings to the Company's natural gas customers. My team conducted the analysis, developed and designed the portfolio proposed in this docket, and analyzed the cost-effectiveness of the proposed programs.

Q. PLEASE DESCRIBE RESOURCE INNOVATIONS' APPROACH IN DEVELOPING DESC'S PROPOSED EE PROGRAMS.

A. DESC approached Resource Innovations to develop a potential portfolio of natural gas DSM programs ("Natural Gas EE Programs") that would emulate and, where applicable, align with the Company's electric EE programs, thus allowing the Company to provide a portfolio of DSM programs to all of DESC's customers. To summarize some specific steps taken to accomplish these goals:

First, Resource Innovations analyzed DESC's natural gas customer base. This analysis helped my team identify potential measures that would have the greatest impact on the Company's eligible customers. Next, my team used its experience in designing, implementing, and evaluating conservation programs around the country, in

conjunction with DESC's natural gas sales team's insight and familiarity with their customers and service territory, to hone in on measures that would specifically work for DESC's natural gas customers and that were in line with measures offered by other utilities in the southeast. DESC and my team then worked together to refine and develop the list of measures into actual program offerings, and this process included the identification of opportunities to align or establish synergies with DESC's program offerings for electric customers.

Resource Innovations then developed measure impact estimates, including incremental costs, natural gas savings, and estimated useful life in order to evaluate the cost-effectiveness, potential participation levels, and overall benefits to DESC's customers. Based on the quantitative assessment of measure and program costs and benefits, the measure list and proposed program offerings were further refined into final proposed program offerings.

Q. PLEASE PROVIDE A SUMMARY OF THE PROPOSED DESC PROGRAMS.

A. DESC's proposed Natural Gas EE Programs provide opportunities for the Company's natural gas customers to improve the energy efficiency of their homes and eligible businesses. A summary of each program is as follows:

Residential High Efficiency Gas Equipment Rebate Program. This program encourages residential customers to replace existing natural gas equipment with energy efficient equipment. The program provides financial incentives to participating customers that purchase and install qualifying high efficiency natural gas equipment in their homes. The program will leverage DESC's existing program infrastructure from

the existing Heating & Cooling and Water Heating Program, offered under the Company's electric DSM portfolio, to cost-effectively administer this program.

Natural Gas EnergyWise Savings Store Program. This program revises eligibility in the EnergyWise Savings Store to provide online discounts for residential natural gas customers that are not currently available. With this new natural gas DSM program, the Company's natural gas and combination customers (i.e., customers that purchase both gas and electric energy from the Company) will be able to purchase gas efficiency measures from the EnergyWise Savings Store. These newly eligible customers will create a user account using their DESC account number to validate their eligibility and will be able to purchase discounted equipment such as smart thermostats, high-efficiency showerheads, and faucet aerators.

High Efficiency Commercial Gas Equipment Program. This program uses financial incentives to encourage small to medium sized business customers to replace existing natural gas equipment with high efficiency natural gas equipment. The program will primarily focus on efficient natural gas space heating and water heating equipment for small business customers and efficient natural gas cooking equipment for small and medium-sized business customers. To receive an incentive, customers must provide DESC with a completed application form and all required supporting documentation. Similar to the Residential Equipment program, DESC will leverage the existing infrastructure from their EnergyWise for your Business Program to administer this program.

Residential Low Income Program. This program expands the Company's income-qualified offering to its gas only customers. The program will offer energy efficiency

education, in-home energy assessments, and the direct installation of low-cost natural gas efficiency measures. The program will be offered in a coordinated fashion with the Company's Neighborhood Energy Efficiency Program ("NEEP"), which is provided as part of DESC's electric DSM portfolio.

PROGRAM IMPACTS

Q. PLEASE DESCRIBE HOW RESOURCE INNOVATIONS ANALYZED INDIVIDUAL ENERGY EFFICIENCY MEASURES.

A. Resource Innovations evaluated the energy savings, measure lives, and incremental customer costs (collectively referred to as measure impacts) of the proposed Natural Gas EE Programs. Resource Innovations relied on a combination of primary and secondary sources as follows:

- Natural gas savings were determined using engineering calculations that incorporated local weather characteristics, as appropriate, as well as verified impacts from similar programs in other jurisdictions, weather adjusted as appropriate, and publicly available energy efficiency technical reference manuals.
- Equipment useful lives were derived from a review of industry standard secondary sources.
- Incremental customer costs were based on a combination of locally applicable sources, including local retail cost data and average cost data provided by industry accepted sources, such as publicly available technical reference manuals. In line with industry standards, the incremental cost of a specific measure is defined as the cost to upgrade to the high efficiency

technology from the baseline technology. For measures that are typically replaced at the end of their useful life, such as furnaces, the incremental cost reflects the cost to upgrade from a standard efficiency system to a high efficiency furnace.

Q. PLEASE DESCRIBE THE COST-BENEFIT ANALYSIS PROCESS FOR THE PROPOSED CONSERVATION PROGRAMS.

A. The cost-benefit analysis for the newly proposed Natural Gas EE Programs included three key components as follows:

1. Measure-Level Analysis: For each energy efficiency measure, Resource Innovations evaluated the associated measure costs and benefits. Measure-level costs included customer costs and incentives, as applicable. Program and portfolio administrative costs were excluded from the measure-level analysis.
2. Program-Level Analysis: Leveraging the measure-level impacts, Resource Innovations analyzed the program costs and benefits of the proposed offerings. During this step, program-specific operational and administrative program costs were included and summed along with the measure-level costs within a program to assess the program impacts.
3. Portfolio-Level Analysis: Program impacts for each of the newly proposed and expanded programs were summed, and portfolio-level management, administrative, and evaluation costs that extend across all programs (such as overall program management and reporting) were added to the individual program costs.

Q. HOW DID RESOURCE INNOVATIONS EVALUATE THE COST-EFFECTIVENESS OF THE PROPOSED PROGRAMS EVALUATED?

A. Resource Innovations evaluated the proposed Natural Gas EE Programs using the four standard cost-benefit analysis tests, which are consistent with the California Standard Practice Manual. These tests can be described as follows:

- **Utility Cost Test ("UCT")**: This test is designed to measure the cost-effectiveness of a program from the utility's perspective.
- **Total Resource Cost Test ("TRC")**: This test is designed to measure whether a program is cost-effective from a societal perspective and includes both the participant's costs and the utility's costs.
- **Participant Cost Test ("PCT"):** This test is designed to measure the cost-effectiveness of the program from the perspective of the customer who installs the eligible program measure.
- **Ratepayer Impact Measure Test ("RIM")**: This test is designed to measure the impact on customer bills or rates due to changes in utility revenues and operating costs resulting from the program.

The results of each test are typically presented as a ratio of benefits to costs. In general, if benefits are equal to or greater than costs, resulting in a ratio of 1.0 or greater, the measure or program passes from that test perspective.

Q. CAN YOU SUMMARIZE THE FINDINGS OF THE COST-BENEFIT ANALYSIS?

A. Exhibit B of DESC's Application provides the cost-benefit analysis results for each program and the overall portfolio in the proposed conservation programs. With

the exception of the Low Income Program, each program and the overall portfolio have benefit/cost ratios greater than 1.0 from the TRC and UCT perspectives. Company Witness Shelton will address the application of the TRC test for the low-income program.

Q. WHAT ARE THE ESTIMATED IMPACTS ATTRIBUTABLE TO THE PORTFOLIO OF PROGRAMS?

A. The proposed EE programs will result in annual energy savings ranging from approximately 215,000 therms to over 340,000 therms over five program years, as shown in Exhibit No. ___ (JH-1).

CONCLUSION

Q. PLEASE SUMMARIZE YOUR TESTIMONY.

A. Resource Innovations worked collaboratively with DESC to analyze the Company's natural gas customers to identify potential EE opportunities. Resource Innovations then combined this analysis with its experience in developing natural gas conservation programs in the southeast and around the country, which allowed Resource Innovations to assist DESC with the development of the proposed Natural Gas EE Programs. The proposed Natural Gas EE Programs will provide conservation opportunities for DESC's natural gas customers.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, although I reserve the right to supplement or amend my testimony before or during the Commission's hearing in this proceeding.

Jim Herndon

Vice President

Jim Herndon is a Vice President in the Resource Innovations Strategy & Planning (S&P) group located in the Cary, NC office. Jim currently focuses on strategic planning and program design for utility demand-side management (DSM) initiatives throughout the country. His planning and design work is informed by 20 years of experience in all facets of DSM programs including performing market assessments and portfolio planning, managing turnkey implementation, conducting technical project reviews, and delivering third-party program evaluations. In providing strategic consulting services, Jim strives to understand the client's goals and objectives and tailor the analysis to leverage industry best practices while aligning with the client's individual characteristics and needs)

AREAS OF EXPERTISE:

- **Resource Planning Support:** Providing technical analysis, regulatory support, and expert witness testimony for DSM program development and integrated resource planning (IRP) activities to electric and natural gas utilities.
- **Energy Analysis and Market Characterization:** Evaluating the technical and economic applicability of DSM measures for program development; and determining energy savings estimates and market potential for measures and program offerings in a particular region or service territory.
- **Portfolio Planning and Program Design:** Conducting cost-effectiveness analysis and providing strategic insights to assist in the planning, design, and implementation of DSM programs.
- **Program Management:** Ensuring compliance with energy program rules; coordinating staff workload and budgets; working directly with service providers and customers on projects; and advising contractors on savings estimates.

EXPERIENCE

Vice President, *Resource Innovations (2018 - Present)*
Principal Consultant, *Resource Innovations (2014 - 2018)*
Senior Project Manager/Project Manager, *Resource Innovations (2007 - 2014)*
Senior Engineer/Project Engineer, *Resource Innovations (2002 - 207)*
Project Engineer, *EMCON/IT Corporation (1998 - 2001)*

EDUCATION, CERTIFICATIONS, AND LICENSING

M.S. in Engineering Management – Duke University
B.S. in Civil and Environmental Engineering – Duke University

REPRESENTATIVE PROJECTS

Columbia Gas of Virginia (CVA) – DSM Program Design and Implementation (2010–Present)
Jim is the technical lead for the Resource Innovations program design and regulatory support services team for CVA's WarmWise program offerings. Resource Innovations support includes portfolio planning and

regulatory support for CVA's residential and commercial energy efficiency programs, as well as providing rebate processing and other support services to assist CVA in the implementation of their programs. Jim has led Resource Innovations portfolio planning efforts, including market characterization analysis, technical analysis of proposed programs and portfolio, development of annual program budgets and savings targets, and regulatory support of CVA's program filings with the Virginia State Corporation Commission, including providing written testimony supporting Resource Innovations analysis.

Dominion Energy – DSM Program Design and Implementation (2020–Present)
Jim oversees DSM portfolio planning and program design projects for Dominion Energy's natural gas utilities in North Carolina and Ohio. In each of these service territories, Jim and his team worked collaboratively with Dominion Energy to identify applicable DSM measures, quantify measure impacts, create logical program offerings, and analyze the cost-effectiveness of the offerings. Jim also supported the DSM regulatory process in each jurisdiction through the development of expert witness testimony and assistance with responses to regulatory data requests.

Virginia Natural Gas – DSM Program Design and Regulatory Support (2014–Present)
Jim currently leads Resource Innovations technical and regulatory support for Virginia Natural Gas's residential DSM portfolio. Support activities include: program cost-effectiveness analysis and preparation of regulatory filings, including annual status updates to the Virginia State Corporation Commission, and technical analysis and testimony for regulatory approval of program updates and modifications.

Elizabethtown Gas – DSM Program Design and Regulatory Support (2016–2018)
Jim led the Resource Innovations technical and regulatory support for Elizabethtown Gas's development of updated DSM program offerings to their residential and commercial customers. Resource Innovations worked collaboratively with Elizabethtown Gas to develop cost-beneficial programs for their eligible customer base. Support activities include program cost-effectiveness analysis and preparation of testimony for regulatory program filing with the New Jersey Board of Public Utilities.

Duke Energy – Market Potential Studies (2015–Present)
Jim has directed multiple DSM market potential studies for Duke Energy's North Carolina, South Carolina, Indiana and Ohio service territories. The studies for each service territory integrated both energy efficiency and demand response opportunities across Duke Energy's residential, commercial, and industrial customer classes; and determined the technical, economic, and program potential. Resource Innovations conducted the studies in close coordination with Duke Energy's IRP team, as well as program design and delivery teams, in order to provide an accurate assessment of market potential that can be directly applied to Duke Energy's current and future DSM planning efforts.

Duke Energy – Program Evaluations (2014–Present)
Jim currently serves as the Project Manager for Resource Innovations evaluation, measurement and verification (EM&V) of five DSM program offerings. The evaluation activities include separate impact and process evaluations across Duke Energy's five service territories to assess program performance, adherence to best practices, and opportunities for program improvements. Jim provides daily project management oversight of Resource Innovations project staff, coordination of resources, and quality control oversight of project deliverables.

Florida Statewide Potential Study (2017-2019)
Jim led the Resource Innovations team that was retained by Florida Power &Light on behalf of seven utilities in the state of Florida to complete technical potential studies for all seven utilities. The scope of the studies included Energy Efficiency (EE), Demand Response (DR), and Distributed Energy Resources (DER) opportunities across the residential, commercial, and industrial sectors, including interaction between these categories of DSM in order to account for overlapping impacts. In addition to the technical potential analysis, Resource Innovations assessed economic and achievable potential for a subset of the seven utilities. Following the completion of the studies, Resource Innovations provided regulatory support for the 2019

Florida Goals Proceeding including preparation of direct written testimony, deposition, and support for the discovery process by preparing required responses to data requests and regulatory interrogatories. Resource Innovations also provided oral testimony during the Commission's hearing on the Goals Proceeding.

Santee Cooper – DSM Program Design and Implementation (2009–Present)
Jim provides strategic program design support activities for Santee Cooper's suite of energy efficiency programs across the residential and commercial market segments, as well as strategic program advisory services for Santee Cooper's long-term energy reduction goals. Previously, Jim managed Resource Innovations initial development, rollout, and management of Santee Cooper's commercial energy efficiency programs.

Georgia Power Company – DSM Program Analysis and IRP Support (2005–2019)
Jim provided technical and regulatory support for Georgia Power Company's DSM program analysis in the residential and commercial markets for their 2007, 2010, 2013, 2016, and 2019 IRP filings. The program analysis support included comprehensive compilation and assessment of applicable DSM measures and technologies across the residential, commercial, and industrial sectors, as well as the determination of the overall market potential through four separate technical potential studies (completed in 2007, 2012, 2015 and 2018). Jim also led the portfolio planning efforts that included developing preliminary program designs, savings targets, and budgets, along with supporting cost-effectiveness analysis to determine the feasibility of individual measures and program offerings for implementation.

Dominion Virginia Power – Program Development and Regulatory Support (2014–2016)
Jim served as the program design lead and expert witness in support of Dominion Virginia Power's regulatory filing for three proposed DSM program offerings. He provided input on the delivery structure, eligibility criteria, and cost-effectiveness analysis in the development of program offerings. Additionally, Jim provided written and oral testimony on behalf of Dominion Virginia Power in support of the Resource Innovations technical analysis on the feasibility and cost-effectiveness of the programs to the Virginia State Corporation Commission.

Los Angeles Department of Water and Power (LADWP) – Energy Efficiency Potential Study (2013–2015)
Jim managed the development of an energy efficiency potential study for the LADWP. Under his direction, Resource Innovations quantified the energy efficiency potential for LADWP's service territory, including collection of primary data through facility auditing to determine the energy efficiency potential of facilities owned by the City of Los Angeles. The study followed industry best practices to determine the energy efficiency potential, and undertook unique approaches to aggregate and bundle measures into program delivery channels to identify all possible achievable savings. The study will inform LADWP's short-term program planning, as well as updates to their 10-year program planning targets.

resource innovations
Reimagining tomorrow with Nexant today

The following is a representative listing of a selection of Resource Innovations utility clients and contractual role with each:

Client	Scope									
	DSM Program Design	Administration	Marketing	Trade Ally Management	Call Center Support	Rebate Processing	Program Tracking	Auditing & Engineerign Review	Market Potential Study	Program Evaluation
CenterPoint Energy	■	■	■	■		■	■	■	■	■
Colorado Governor's Energy Office	■	■								■
Columbia Gas of Virginia	■	■			■	■	■	■	■	
Commonwealth Edison	■	■	■	■	■	■	■	■		
Danville Utilities	■	■	■	■	■	■	■	■		
Dominion Energy	■	■	■	■	■	■	■	■		■
Duke Energy									■	■
Elizabethtown Gas	■									■
Entergy, Texas	■	■		■						
Enbridge Gas									■	■
Florida Power & Light									■	
Independent Electricity System Operator (IESO)								■	■	■
JEA	■	■	■	■		■	■	■		
Georgia Power Company	■								■	■
MidAmerican Energy	■	■	■	■			■	■	■	
Northwestern Energy									■	
NYSERDA		■					■	■		■
Oncor	■	■	■	■		■	■	■		
PacifiCorp	■	■	■	■		■	■	■	■	
PG&E	■	■	■	■			■	■		
Platte River Power Authority	■	■								
Salt River Project	■	■	■	■	■	■	■	■		
Santee Cooper	■	■	■	■				■	■	
Southern California Edison	■	■	■					■		
Southwest Gas	■	■	■	■	■	■	■	■		
Utah State Energy Program	■	■	■	■			■	■		
Tri-State Power									■	■
Vectren Energy	■	■	■	■		■	■	■		
Virginia Natural Gas	■									■
Xcel Energy	■	■	■	■			■	■	■	

Incremental Annual Energy Savings

Program	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Residential High Eff. Gas Equipment Program	92,839	127,762	159,550	159,550	159,964
Natural Gas EnergWise Store Program	34,329	41,154	47,978	47,978	47,978
Residential Low Income Program	20,248	20,248	20,248	20,248	20,248
Commercial High Eff. Gas Equipment Program	67,092	91,116	113,883	113,883	113,883
Total Savings (therms)	**214,507**	**280,280**	**341,659**	**341,659**	**342,073**

Annual Budgets

Program	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Residential High Eff. Gas Equipment Program	$433,945	$564,095	$699,025	$699,025	$702,725
Natural Gas EnergWise Store Program	$73,869	$76,751	$84,633	$84,633	$84,633
Residential Low Income Program	$242,645	$242,645	$242,645	$242,645	$242,645
Commercial High Eff. Gas Equipment Program	$200,028	$226,768	$268,083	$268,083	$268,083
Portfolio Mgmt/Admin	$260,985	$228,477	$243,415	$243,415	$243,785
Total Budget	**$1,211,471**	**$1,338,735**	**$1,537,800**	**$1,537,800**	**$1,541,870**

Portfolio Cost-Benefit Results

Program	Total Resource Cost		Participant Cost Test		Utility Cost Test		Ratepayer Impact Measure	
	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
Residential High Eff. Gas Equipment Program	$515,644	1.1	$6,561,957	*2.8*	$1,898,193	1.7	-$6,046,313	0.4
Natural Gas EnergWise Store Program	$644,289	1.5	$2,567,770	*3.5*	$1,271,291	3.3	-$1,923,480	0.5
Residential Low Income Program	*-$591,828*	*0.4*	*$784,668*	*17.9*	*-$591,828*	*0.4*	*-$1,376,496*	*0.2*
Commercial High Eff. Gas Equipment Program	$242,685	1.1	$3,053,408	3.2	$1,031,017	2.0	-$2,810,723	0.4
Portfolio Mgmt/Admin	-$1,052,949	0.0	$0	99.9	-$1,052,949	0.0	-$1,052,949	0.0
Totals*	**$349,669**	**1.0**	**$12,183,135**	**3.0**	**$3,147,552**	**1.6**	**-$11,833,466**	**0.4**

*Excludes Residential Low Income program

Residential High Efficiency Gas Equipment Program

Overview

The Resiential High Efficiency Equipment Rebate Program promotes energy efficiency improvements in existing homes. The program would provide financial incentives to participating customers who purchase and install qualifying high efficiency natural gas equipment.

Customer Eligibility and Participation Process

This program is available to DESC residential customers that meet the eligibility requirements per measure, as specified in the table below. To receive an incentive for an eligible measure, customers will submit a completed application form and all required supporting documentation, such as invoices or receipts for the equipment purchased or work performed.

Measure Details and Annual Program Estimates

The following table details the eligible measures, including efficiency standards, savings estimates, incentive levels, and annual participation. Annual program budgets and savings are also provided.

Residential Equipment Rebates								
				Incremental Participation				
Measures	Minimum Efficiency Requirements	Savings (therms)	Incentive	Yr1	Yr2	Yr3	Yr4	Yr5
Tier 1 High Efficiency Gas Furnace (90%)	90%+ AFUE	81.0	$250	419	559	699	699	699
Tier 2 High Efficiency Gas Furnace (95%)	95%+ AFUE	91.0	$350	461	615	769	769	769
Tier 1 Gas Storage Water Heater	0.64+ UEF	14.1	$75	20	32	40	40	40
Tier 2 Gas Storage Water Heater	0.80+ UEF	41.4	$350	21	32	42	42	52
Tier 1 Gas Tankless Water Heater (0.80)	0.80+ UEF	41.4	$250	161	248	294	294	294
Tier 2 Gas Tankless Water Heater (0.90)	0.90+ UEF	53.5	$350	108	164	220	220	220
Direct Vent Gas Fireplace	FE ≥ 70% with an electronic pilot ignition	67.0	$150	50	85	100	100	100
			Total Incentives:	$360,500	$500,750	$627,100	$627,100	$630,600
			Total Program Non-Incentive (Admin, Mgmt, Marketing):	$73,445	$63,345	$71,925	$71,925	$72,125
			Total Annual Budget:	$433,945	$564,095	$699,025	$699,025	$702,725
			Total Annual Savings (therms):	92,839	127,762	159,550	159,550	159,964

Cost-Benefit Summary

Measure-level and program-level cost-effctiveness results for each of the four standard tests are provided below:

COST EFFECTIVENESS TESTS - RESIDENTIAL EQUIPMENT REBATES PROGRAM (5 Years)								
	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
MEASURE	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
R - High Efficiency Gas Furnace (90%)	$586,405	1.6	$2,459,649	3.4	$955,971	2.5	-$1,873,245	0.5
R - High Efficiency Gas Furnace (95%)	$448,183	1.3	$2,961,446	2.9	$983,614	2.0	-$2,513,263	0.4
R - High Efficiency Gas Storage Water Heater	-$10,257	0.6	$9,937	1.4	$1,920	1.2	-$20,194	0.4
R - High Efficiency Gas Tankless Water Heater (0.80)	-$86,813	0.8	$448,199	2.0	$84,527	1.3	-$535,012	0.4
R - High Efficiency Gas Tankless Water Heater (0.90)	-$142,215	0.7	$375,842	1.8	$57,756	1.2	-$518,057	0.4
R - Condensing Water Heater	-$67,294	0.4	$17,868	1.2	-$14,340	0.7	-$85,163	0.3
R - Direct Vent Gas Fireplace	$91,304	1.9	$289,015	4.0	$132,412	3.4	-$197,711	0.5
Program Costs	-$303,668	0.0	$0	N/A	-$303,668	0.0	-$303,668	0.0
Totals	$515,644	1.1	$6,561,957	2.8	$1,898,193	1.7	-$6,046,313	0.4

Commercial High Efficiency Gas Equipment Program

Overview

The Commercial High Efficiency Gas Equipment Program encourages commercial customers to replace existing natural gas equipment with energy efficient equipment. This program will target small to medium-sized business and provide financial incentives to eligible participating customers who purchase and install qualifying high efficiency natural gas equipment measures for commercial facilities.

Customer Eligibility and Participation Process

This program is available to DESC natural gas commercial customers on the Small Firm General Service and Medium General Service rate classes that meet the eligibility requirements per measure, as specified in the table below. Customers may receive an incentive for purchasing and installing an eligible measure then submitting completed application form and all required supporting documentation, such as invoices or receipts for the equipment purchased or work performed for rebates.

Measure Details and Annual Program Estimates

The following table details the eligible measures, including efficiency standards, savings estimates, incentive levels, and annual participation. Annual program budgets and savings are also provided.

High Efficiency Commercial Gas Equipment Incentives				Incremental Participation				
Measures	Minimum Efficiency Requirements	Savings (therms)	Incentive	Yr1	Yr2	Yr3	Yr4	Yr5
Tier 1 High Efficiency Gas Furnace (90%)	90%+ AFUE	145.0	$250	90	120	150	150	150
Tier 2 High Efficiency Gas Furnace (95%)	95%+ AFUE	179.0	$350	45	60	75	75	75
High Efficiency Gas Boiler (90%)	90%+ AFUE	145.0	$200	-	-	1	1	1
Infrared Heater	Infrared Heating System replacing existing natural gas heater (non-infrared)	451.0	$500	52	70	87	87	87
Tier 1 Gas Storage Water Heater	ENERGY STAR (0.64+), <75k Btu (Residential type/size)	14.1	$75	1	2	2	2	2
Tier 2 Gas Storage Water Heater	ENERGY STAR (0.80+), <75k Btu (Residential type/size)	41.4	$350	1	2	2	2	2
High Efficiency Gas Tankless Water Heater	ENERGY STAR (0.80+), <75k Btu (Residential type/size)	41.4	$250	1	1	1	1	1
High Efficiency Commercial Gas Storage Water Heater	ENERGY STAR Commercial Grade (>75k Btu)	356.9	$2/kBtu	2	4	5	5	5
ENERGY STAR Gas Convection Oven	ENERGY STAR certified	156.0	$400	14	19	24	24	24
ENERGY STAR Gas Combination Oven	ENERGY STAR certified	266.1	$1,000	2	5	10	10	10
ENERGY STAR Gas Commercial Fryer	ENERGY STAR certified	507.9	$500	13	17	21	21	21
ENERGY STAR Gas Griddle	ENERGY STAR certified	149.0	$300	14	19	24	24	24
Pre-Rinse Spray Valve	1.25 gpm unit	53.1	$25	74	93	109	109	109
ENERGY STAR Steam Cooker	ENERGY STAR certified	912.3	$1,000	7	10	12	12	12
			Total Incentives:	$92,875	$127,725	$162,475	$162,475	$162,475
			Total Program Non-Incentive (Admin, Mgmt, Marketing):	$107,153	$99,043	$105,608	$105,608	$105,608
			Total Annual Budget:	$200,028	$226,768	$268,083	$268,083	$268,083
			Total Annual Savings (therms):	67,092	91,116	113,883	113,883	113,883

Cost-Benefit Summary

Measure-level and program-level cost-effctiveness results for each of the four standard tests are provided below:

COST EFFECTIVENESS TESTS - COMMERCIAL GAS EQUIPMENT INCENTIVES PROGRAM (5 Years)								
	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
MEASURE	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
C - High Efficiency Gas Furnace (90%)	$252,835	2.2	$799,480	4.7	$332,158	3.4	-$546,645	0.5
C - High Efficiency Gas Furnace (95%)	$141,124	1.9	$490,000	4.3	$193,355	3.0	-$348,876	0.5
C - High Efficiency Gas Boiler (90%)	$1,017	1.9	$3,325	4.0	$1,658	4.5	-$2,308	0.5
C - Infrared Heater	$114,678	1.2	$852,356	2.5	$508,868	4.1	-$737,679	0.5
C - High Efficiency Gas Storage Water Heater	-$665	0.5	$353	1.3	-$25	1.0	-$1,018	0.3
C - High Efficiency Gas Tankless Water Heater	-$1,073	0.7	$2,500	1.8	$123	1.1	-$3,574	0.4
C - Condensing Water Heater	-$2,048	0.3	$201	1.1	-$605	0.6	-$2,249	0.3
C - Com-High Efficiency Commercial Gas Storage Water Heater	$103	1.0	$28,914	2.1	$19,662	3.8	-$28,811	0.5
C - ENERGY STAR Gas Convection Oven	$25,846	1.6	$115,913	3.8	$31,263	1.9	-$90,067	0.4
C - ENERGY STAR Gas Combination Oven	-$25,469	0.6	$36,951	1.6	$8,804	1.3	-$62,420	0.4
C - ENERGY STAR Gas Commercial Fryer	$98,321	2.0	$295,301	4.1	$153,476	4.9	-$196,979	0.5
C - ENERGY STAR Gas Griddle	-$47,208	0.6	$31,531	1.3	$37,146	2.4	-$78,740	0.4
C - Pre-Rinse Spray Valve	$40,360	4.0	$95,140	8.1	$43,300	5.1	-$54,779	0.5
C - ENERGY STAR Steam Cooker	$95,420	1.9	$301,443	4.0	$152,392	4.4	-$206,023	0.5
Program Costs	-$450,557	0.0	$0	N/A	-$450,557	0.0	-$450,557	0.0
Totals	$242,685	1.1	$3,053,408	3.2	$1,031,017	2.0	-$2,810,723	0.4

Natural Gas EnergyWise Savings Store Program

Overview

The Natural Gas EnergyWise Savings Store Program is an expansion of the online store that is currently available to DESC's electric customers, providing energy efficiency products with rebates instantly applied to the purchase price. The Company's existing EnergyWise Savings Store will be revised to include product offerings for natural gas customers directly from DESC's website.

Customer Eligibility and Participation Process

This program is available to DESC natural gas residential customers. Customers will participate in the program by creating a user account on the EnergyWise website using their DESC account number to validate their eligibility. The online store offer discounts on eligible EE products to customers, such as smart thermostats, high efficiency showerheads, and faucet aerators, etc.

Measure Details and Annual Program Estimates

The following table details the eligible measures, including efficiency standards, savings estimates, incentive levels, and annual participation. Annual program budgets and savings are also provided.

Online Store Program				Incremental Participation				
Measures	Minimum Efficiency Requirements	Savings (therms)	Incentive	Yr1	Yr2	Yr3	Yr4	Yr5
Smart Thermostat	ENERGY STAR certified; must have natural gas heat	27.7	$50	1,000	1,200	1,400	1,400	1,400
High Efficiency Showerheads	≤ 1.5 GPM	15.3	$7	184	212	240	240	240
Faucet aerators	≤ 1.0 GPM	12.6	$2	184	212	240	240	240
Weather stripping		51.0	$13	30	40	50	50	50
			Total Incentives:	$39,546	$47,428	$55,310	$55,310	$55,310
			Total Program Non-Incentive (Admin, Mgmt, Marketing):	$34,323	$29,323	$29,323	$29,323	$29,323
			Total Annual Budget:	$73,869	$76,751	$84,633	$84,633	$84,633
			Total Annual Savings (therms):	34,329	41,154	47,978	47,978	47,978

Cost-Benefit Summary

Measure-level and program-level cost-effctiveness results for each of the four standard tests are provided below:

COST EFFECTIVENESS TESTS - ONLINE STORE PROGRAM (5 Years)								
	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
MEASURE	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
R - Smart Thermostat-online (gas)	$292,995	1.6	$1,109,637	3.1	$606,545	4.0	-$816,642	0.5
R - Low-Flow Showerhead	$69,056	11.4	$130,839	20.6	$69,056	11.4	-$61,783	0.6
R - Faucet Aerator	$60,554	32.8	$107,921	57.7	$60,554	32.8	-$47,367	0.6
R - Weatherstripping	$60,048	26.9	$109,736	48.3	$59,949	25.8	-$49,688	0.6
Program Costs	-$131,358	0.0	$0	N/A	-$131,358	0.0	-$131,358	0.0
Totals	$351,295	1.5	$1,458,133	3.5	$664,746	3.3	-$1,106,838	0.5

Residential Low Income Program

Overview

The Residential Low Income Program promotes energy efficiency improvements in existing homes occupied by low-income customers. This program will be offered in coordination with DESC's current Neighborhood Energy Efficiency Program ("NEEP") which is provided as part of DESC's electric DSM portfolio. The program will offer in-home site visits that include an assessment of energy efficiency improvements and the direct installation of natural gas saving measures.

Customer Eligibility and Participation Process

This program is available to DESC residential customers that meet the annual household income requirements and have either natural gas space heating or water heating equipment in the home. The participation process will include the following steps:

- Confirm customer eligibility.
- Site visit to eligible residence to provide educational material and discuss opportunities to conserve energy, as well as direct installation of EE measures such as high efficiency showerheads, faucet aerators, hot water pipe insulation, and turning down the water heater temperature set point.

Measure Details and Annual Program Estimates

The following table details savings estimates, incentive levels, and annual participation. Annual program budgets and savings are also provided.

Low-Income				Incremental Participation				
Measures	Minimum Efficiency Requirements	Savings (therms)	Incentive	Yr1	Yr2	Yr3	Yr4	Yr5
Audit & Direct Install Measures	Site audit, educational materials, and direct installation of water savings and weatherization measures	33.7	100%	600	600	600	600	600
Total Incentives:				$10,800	$10,800	$10,800	$10,800	$10,800
Total Program Non-Incentive (Admin, Mgmt, Marketing):				$231,845	$231,845	$231,845	$231,845	$231,845
Total Annual Budget:				$242,645	$242,645	$242,645	$242,645	$242,645
Total Annual Savings (therms):				20,248	20,248	20,248	20,248	20,248

Cost-Benefit Summary

Measure-level and program-level cost-effctiveness results for each of the four standard tests are provided below:

COST EFFECTIVENESS TESTS - LOW INCOME PROGRAM (5 Years)								
	Total Resource Cost		Participant Test		Utility Cost Test		Ratepayer Impact Measure Test	
MEASURE	NPV	B/C	NPV	B/C	NPV	B/C	NPV	B/C
R - Low Income Direct Install Measures	$407,249	9.8	$784,668	17.9	$407,249	9.8	-$377,419	0.5
Program Costs	-$999,077	0.0	$0	N/A	-$999,077	0.0	-$999,077	0.0
Totals	-$591,828	0.4	$784,668	17.9	-$591,828	0.4	-$1,376,496	0.2